

WHAT IS CLAIMED IS:

1. A data processing system including an image
processing apparatus for processing an image and a
5 maintenance apparatus for setting a processing function
of said image processing apparatus, said maintenance
apparatus connected with said image processing apparatus
through a network, wherein

said maintenance apparatus receives an addition
10 level of anti-forgery information, formed on a print
medium by said image processing apparatus, and transmits
an appropriate anti-forgery information addition level
to the image processing apparatus based on the received
addition level, and

15 said image processing apparatus adds anti-forgery
information, having the transmitted addition level, to
an image.

2. The data processing system according to claim 1,
20 wherein said maintenance apparatus determines the
appropriate anti-forgery information addition level
based on a test pattern transmitted by said image
processing apparatus.

25 3. A data processing system including an image
processing apparatus for processing an image and a
maintenance apparatus for setting a processing function

of said image processing apparatus, said maintenance apparatus connected with said image processing apparatus through a network, wherein

said image processing apparatus comprises:

5 image forming means for forming an image to which anti-forgery information is added at a predetermined addition level;

reading means for reading the image formed by said image forming means; and

10 transmission means for transmitting image data, read by said reading means, to said maintenance apparatus through the network, and

said maintenance apparatus comprises:

15 reception means for receiving the image data transmitted by said transmission means of said image processing apparatus; and

20 setting means for determining an addition level appropriate for said image processing apparatus based on the image data received by said reception means, and setting the determined addition level to said image processing apparatus,

wherein said image forming means adds anti-forgery information, having the addition level set by said setting means, to the image.

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4. The data processing system according to claim 3, said image processing apparatus further comprising

addition level storage means for storing the addition level, wherein said image forming means adds anti-forgery information to the image at the addition level, stored in said addition level storage means, and forms
5 an image.

5. The data processing system according to claim 4, said image processing apparatus further comprising test pattern storage means for storing a test pattern,
10 wherein said image forming means adds anti-forgery information to the test pattern, stored in said test pattern storage means, and forms an image.

6. The data processing system according to claim 5,
15 said image processing apparatus further comprising anti-forgery information storage means for storing anti-forgery information, wherein said image forming means adds anti-forgery information, stored in said anti-forgery information storage means, to the test pattern
20 and forms an image.

7. The data processing system according to claim 5, said image processing apparatus further comprising:
anti-forgery information storage means for storing
25 first anti-forgery information to be added to a test pattern and second anti-forgery information to be added to an ordinary image; and

selection means for selecting one anti-forgery information from a plurality of anti-forgery information stored in said anti-forgery information storage means,

wherein said image forming means adds the anti-forgery information, selected by said selection means, to an image for image formation.

8. The data processing system according to claim 3, said setting means of said maintenance apparatus further comprising:

determination means for determining an addition level appropriate for said image processing apparatus based on the image data received by said reception means; and

transmission means for transmitting the addition level, determined by said determination means, to said image processing apparatus.

9. The data processing system according to claim 8, wherein said determination means obtains as the addition level appropriate for said image processing apparatus, a level at which anti-forgery information is readable based on the image data received by said reception means.

10. The data processing system according to claim 9, wherein said determination means of said maintenance

apparatus comprises storage means for storing reference data used for determining the addition level, and determines the addition level based on the reference data and the image data received by said reception means.

11. The data processing system according to claim 10, wherein said determination means performs calculation on the image data received by said reception means and the reference data to determine an addition level which satisfies a predetermined condition.

12. The data processing system according to claim 5, wherein the anti-forgery information added to the test pattern differs from the anti-forgery information added to an ordinary image.

13. A data processing system including an image processing apparatus for processing an image and a maintenance apparatus for setting a processing function of said image processing apparatus, said maintenance apparatus connected with said image processing apparatus through a network, wherein

said image processing apparatus comprises:

image forming means for forming an image, inclusive of anti-forgery information in a plurality of addition levels;

reading means for reading the image formed
by said image forming means; and

transmission means for transmitting the
image, read by said reading means, to said maintenance
5 apparatus through the network, and

said maintenance apparatus comprises:

reception means for receiving the image data
transmitted by said transmission means of said image
processing apparatus; and

10 setting means for selecting an addition
level appropriate for said image processing apparatus
from the plurality of addition levels based on the image
data received by said reception means, and setting the
selected addition level to said image processing
15 apparatus,

wherein said image forming means adds anti-forgery
information, having the addition level set by said
setting means, to an image.

20 14. The data processing system according to claim 13,
comprising, in place of said image forming means, image
forming means for forming an image inclusive of plural
types of anti-forgery information.

25 15. The data processing system according to claim 13,
comprising, in place of said image forming means, image
forming means for forming an image inclusive of $n \times m$ (n

and m are natural numbers) anti-forgery information,
consisting of n number of anti-forgery information in m
number of addition levels.

- 5 16. An image processing apparatus maintained by an
externally connected maintenance apparatus, comprising:
report means for reporting information related to
deterioration of said image processing apparatus; and
addition means for adding anti-forgery
10 information, having an addition level which is
determined based on instruction data transmitted by said
maintenance apparatus in response to the report, to an
image.
- 15 17. The image processing apparatus according to claim
16, wherein said report means transmits, as the
information related to deterioration, a test pattern
inclusive of anti-forgery information to said
maintenance apparatus.
- 20 18. An image processing apparatus connected to an
external maintenance apparatus, comprising:
addition means for adding anti-forgery
information, having a predetermined addition level, to
25 an image;
output means for outputting the image;
reading means for reading the image, outputted by

said output means;

transfer means for transferring image data, read
by said reading means, to said maintenance apparatus;
and

5 reception means for receiving response data,
transmitted by said maintenance apparatus in response to
the transfer of the image by said transfer means,

wherein said addition means adds the anti-forgery
information to a next input image at an addition level
10 designated by the response data.

19. The image processing apparatus according to claim
18, further comprising addition level storage means for
storing the addition level, wherein said addition means
15 adds anti-forgery information having the addition level
stored in said addition level storage means.

20. The image processing apparatus according to claim
19, further comprising test pattern storage means for
20 storing a test pattern, wherein said addition means adds
anti-forgery information to the test pattern, stored in
said test pattern storage means.

21. The image processing apparatus according to claim
25 20, further comprising anti-forgery information storage
means for storing anti-forgery information, wherein said
addition means adds anti-forgery information, stored in

said anti-forgery information storage means, to the test pattern.

22. The image processing apparatus according to claim
5 20, further comprising:

anti-forgery information storage means for storing
first anti-forgery information to be added to a test
pattern and second anti-forgery information to be added
to an ordinary image; and

10 selection means for selecting one anti-forgery
information from a plurality of anti-forgery information
stored in said anti-forgery information storage means,

wherein said addition means adds the anti-forgery
information, selected by said selection means, to an
15 image.

23. The image processing apparatus according to claim
20, wherein the anti-forgery information added to the
test pattern differs from the anti-forgery information
added to an ordinary image.

24. A maintenance apparatus for maintaining an image
processing apparatus which forms an image inclusive of
anti-forgery information, comprising:

25 determination means for determining an anti-
forgery information addition level in accordance with
deterioration of the image processing apparatus; and

setting means for setting the addition level,
determined by said determination means, to the image
processing apparatus.

5 25. The maintenance apparatus according to claim 24,
wherein said determination means obtains a deterioration
level of the image processing apparatus based on image
data transmitted by the image processing apparatus, and
determines the addition level appropriate for the image
10 processing apparatus.

26. The maintenance apparatus according to claim 24,
wherein said determination means obtains an addition
level, at which anti-forgery information is readable,
15 based on the image transmitted by the image processing
apparatus, and determines the addition level appropriate
for the image processing apparatus.

27. The maintenance apparatus according to claim 25,
20 wherein said determination means comprises storage means
for storing reference data used for determining the
addition level, and determines the addition level
appropriate for the image processing apparatus based on
the reference data and the image transmitted by the
25 image processing apparatus.

28. The maintenance apparatus according to claim 27,

wherein said determination means performs calculation on the image transmitted by the image processing apparatus and the reference data, and determines as the addition level appropriate for the image processing apparatus an addition level which satisfies a predetermined condition.

29. An image processing apparatus setting method of setting an anti-forgery information addition level for an image processing apparatus forming an image inclusive of anti-forgery information, comprising the steps of:

checking deterioration of the image processing apparatus;

determining an anti-forgery information addition level appropriate for the image processing apparatus based on a checking result obtained at said checking step; and

setting the addition level, determined at said determination step, to the image processing apparatus.

30. The image processing apparatus setting method according to claim 29, further comprising the step of receiving a test pattern transmitted by the image processing apparatus,

wherein at said checking step, a deterioration level of the image processing apparatus is checked based on the test pattern.

31. An image processing apparatus setting method
employed by a data processing system including an image
processing apparatus for processing an image and a
5 maintenance apparatus for setting a processing function
of the image processing apparatus, the maintenance
apparatus connected with the image processing apparatus
through a network, said method comprising the steps of:
adding first anti-forgery information to a test
10 pattern at a first addition level;
reading the test pattern, to which the anti-
forgery information is added;
transmitting the read test pattern;
receiving the test pattern inclusive of the anti-
15 forgery information;
determining a second addition level appropriate
for the image processing apparatus based on the received
test pattern; and
setting the second addition level to the image
20 processing apparatus.

32. An anti-forgery information addition method
employed by an image processing apparatus which is
maintained by an externally connected maintenance
25 apparatus, said method comprising the steps of:
reporting information related to deterioration of
the image processing apparatus to the maintenance

apparatus;

receiving instruction data transmitted by the
maintenance apparatus in response to the report; and

adding anti-forgery information to an image at a
5 predetermined addition level based on the instruction
data.

33. The anti-forgery information addition method
according to claim 32, wherein at said reporting step, a
10 test pattern inclusive of anti-forgery information is
transmitted as the information related to the image
processing capability or the information related to the
deterioration level of the image processing function.

34. The anti-forgery information addition method
15 according to claim 33, wherein the anti-forgery
information used at said adding step differs from the
anti-forgery information added to the test pattern.

35. A computer-readable medium having a computer
20 program saved thereupon, said computer program
comprising the steps of:

checking deterioration of an image processing
apparatus, which forms an image inclusive of anti-
25 forgery information;

determining an anti-forgery information addition
level appropriate for the image processing apparatus

based on a checking result obtained at said checking step; and

transmitting the addition level, determined at said determination step, to the image processing
5 apparatus.

36. A computer-readable medium having a computer program saved thereupon, said computer program comprising the steps of:

10 receiving a test pattern from an image processing apparatus, the test pattern formed by adding first anti-forgery information having a first addition level;

determining a second addition level appropriate for the image processing apparatus based on the received
15 test pattern; and

setting the second addition level to the image processing apparatus.

37. A computer-readable medium having a computer
20 program saved thereupon, said computer program comprising the steps of:

reporting information related to deterioration of an image processing apparatus to a maintenance apparatus;

25 receiving instruction data transmitted by the maintenance apparatus in response to the report; and
adding anti-forgery information to an image at a

predetermined addition level based on the instruction data.

38. An image processing apparatus comprising:

5 reception means for receiving from a maintenance apparatus notification which recommends correction of an addition level of information added to an image; and
output means for displaying the received notification.

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39. The image processing apparatus according to claim 38, wherein the information added to the image is added by a visually inconspicuous method.

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40. The image processing apparatus according to claim 38, wherein the addition level varies in correspondence with deterioration of the image processing apparatus.

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41. The image processing apparatus according to claim 38, wherein a timing of the notification is determined based on a date at which the addition level correction was last conducted and a utilization state of the image processing apparatus.

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42. The image processing apparatus according to claim 38, further comprising:

image forming means for forming on a print medium

information to be added to the image;

read means for reading the formed addition
information;

transmission means for transmitting the read
5 addition information to the maintenance apparatus; and
setting means for setting an addition level of the
addition information to a most appropriate value in
accordance with the information received from the
maintenance apparatus.

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43. A maintenance apparatus comprising:

reception means for receiving date information and
addition level information of information to be added to
an image by an image forming apparatus;

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determination means for determining based on the
received information, a date at which notification
recommending correction of the addition level is to be
sent to the image forming apparatus; and

transmission means for transmitting the
20 notification to the image processing apparatus on the
determined date.

44. The maintenance apparatus according to claim 43,
wherein the information to be added to the image is
25 added by a visually inconspicuous method.

45. The maintenance apparatus according to claim 43,

wherein the addition level varies in correspondence with deterioration of the image processing apparatus.

46. The maintenance apparatus according to claim 43,
5 wherein a timing of the notification is determined based on a date at which the addition level correction was last conducted and a utilization state of the image processing apparatus.

10 47. The maintenance apparatus according to claim 43, wherein the addition level information and date information to be added to the image are stored in association with at least one of a machine number, telephone number, IP address, or MAC address of the
15 image forming apparatus.

48. An image processing method comprising the steps of:

receiving from a maintenance apparatus a report
20 which recommends correction of an addition level of information added to an image; and
displaying the received report.

49. A maintenance method comprising the steps of:
25 receiving date information and addition level information of information to be added to an image by an image forming apparatus;

determining based on the received information, a date at which a report recommending correction of the addition level is to be sent to the image forming apparatus; and

5 transmitting the report to the image processing apparatus on the determined date.

50. An image processing apparatus for adding visually inconspicuous information to an image, comprising:

10 reception means for receiving information from a maintenance apparatus in order to further add, in addition to the information, visually inconspicuous information; and

15 processing means for adding information to be added to the image using the received information.

51. The image processing apparatus according to claim 50, wherein the received information includes a program for acquiring information to be added to the image.

20 52. The image processing apparatus according to claim 50, further comprising inquiry means for inquiring whether or not the maintenance apparatus has additional information to be added to the image.

25 53. The image processing apparatus according to claim 52, wherein the inquiry is made at the time of turning

on the power of the image processing apparatus, or at predetermined time, or at a timing at which the image processing apparatus shifts to a power-saving mode.

5 54. The image processing apparatus according to claim 50, wherein the information to be added includes date information, information regarding an apparatus used to pick up or input the image, copyright information of the image, or setting information of an apparatus used to
10 pick up/input/form the image.

55. A maintenance apparatus comprising:
designations means for newly designating
information to be added to an image as visually
15 inconspicuous information at the time of image formation in an image processing apparatus; and

transmission means for transmitting information,
in addition to information set in advance in the image processing apparatus as addition information, in order
20 to cause the image processing apparatus to form newly designated information to be added to the image.

56. The apparatus according to claim 55, wherein the transmitted information includes a program for acquiring
25 the newly designated information to be added to the image.

57. The apparatus according to claim 55, wherein said transmission means transmits the information to be added in response to an inquiry from the image processing apparatus.

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58. The apparatus according to claim 57, wherein the inquiry is made at the time of turning on the power of the image processing apparatus, or at predetermined time, or at a timing at which the image processing

10 apparatus shifts to a power-saving mode.

59. The apparatus according to claim 55, wherein the newly designated information to be added includes date information, information regarding an apparatus used to pick up or input the image, copyright information of the image, or setting information of an apparatus used to pick up/input/form the image.

60. The apparatus according to claim 55, wherein said transmission means transmits the information to a plurality of image processing apparatuses including said image processing apparatus, and said maintenance apparatus further comprises display means for displaying addition information in each of the plurality of image processing apparatuses.

61. An image processing method of adding visually

inconspicuous information to an image, comprising the steps of:

receiving information from a maintenance apparatus in order to further add, in addition to the information, visually inconspicuous information; and

adding information to be added to the image using the received information.

62. A maintenance method comprising the steps of:

newly designating information to be added to an image as visually inconspicuous information at the time of image formation in an image processing apparatus; and

transmitting information, in addition to information set in advance in the image processing apparatus as addition information, in order to cause the image processing apparatus to form newly designated information to be added to the image.

63. A data processing system comprising:

image processing apparatus which processes an image; and

maintenance apparatus connected to said image processing apparatus through a network, which has first determination unit which determines at least one addition level of anti-forgery information based on processing ability of said image processing apparatus, wherein said image processing apparatus adds anti-

forgeries information, having the determined addition level, to an image.

64. The data processing system according to claim 63,
5 wherein said maintenance apparatus further comprising:
reception unit which receives at least one test pattern from said image processing apparatus; and
second determination unit which determines said processing ability of said image processing apparatus
10 based on said test pattern.

65. A data processing system comprising:
image processing apparatus which processes an image; and
15 maintenance apparatus connected to said image processing apparatus through a network, which has first determination unit which determines at least one addition level of anti-forgery information based on degree of degradation related to said image processing
20 apparatus,
wherein said image processing apparatus adds anti-forgery information, having the determined addition level, to an image.

25 66. The data processing system according to claim 65, wherein said maintenance apparatus further comprising:
reception unit which receives at least one test

